

ABSTRACT

Disclosed is an ultrasonic surgical instrument that combines end-effector geometry to best affect the multiple functions of a shears-type configuration. The 5 shape of the blade is characterized by a radius cut offset by some distance to form a curved geometry. The cut creates a curved surface with multiple asymmetries causing multiple imbalances within the blade. Imbalance due to the curve of the instrument is corrected by a non-functional asymmetry proximal to the functional asymmetry. Imbalance due to the asymmetric cross-section of the blade is corrected 10 by the appropriate selection of the volume and location of material removed from a functional asymmetry. The shape of the blade in one embodiment of the present invention is characterized by two radius cuts offset by some distance to form a curved and potentially tapered geometry. These two cuts create curved surfaces including a concave surface and a convex surface. The length of the radius cuts 15 affects, in part, the acoustic balancing of the transverse motion induced by the curved shape.